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# ETHYL CORPORATION

July 13, 1973

MANUFACTURING DEPARTMENT  
VICE PRESIDENT

ETHYL TOWER  
451 FLORIDA  
BATON ROUGE, LA. 70801

Mr. Arthur W. Busch  
Regional Administrator  
Environmental Protection Agency  
Region VI  
1600 Patterson Street, Suite 100  
Dallas, Texas 75201

Dear Mr. Busch:

Re: Permit No. 730D009

Experience in operating under the subject permit and the consideration of certain studies specified in it have revealed two areas where revisions to the permit are indicated as follows:

SPECIAL CONDITION 1 (PAGE 6)  
PERMIT NO. 730D009

On page 2 of our permit application dated April 19, 1973, we showed the following as the expected chemical composition of sodium calcium sludge waste in drums.

Chemical Composition:

	<u>Drum Content</u>
Metallic Sodium	50% to 60%
Metallic Calcium	8% to 13%
Calcium Oxide	~ 4%
Sodium Oxide	~ 13%
Sodium and Calcium Chlorides	18% to 23%

This analysis was based on the best data available at that time. You will note that we showed the sodium and calcium oxide contents as approximate. Actually there is no way of controlling the degree of oxida-

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tion of these very reactive metals in the process and we expect these concentrations to vary.

In the permit, upper limits of our expected ranges were specified for metallic sodium and calcium and chlorides but finite maximums were specified for the oxides as shown below.

Special Condition (Page 6)

a. Chemical Composition

Constituents	Concentrations or Percentage (Wt/Wt) Not to Exceed Drum Content
Metallic Sodium	60%
Metallic Calcium	13%
Calcium Oxide	4%
Sodium Oxide	13%
Sodium and Calcium Chlorides	Range 18-23%

The 700 drums of sludge which we disposed of at sea were analyzed just prior to loading. The average calcium oxide analysis of 5.8% versus the 4.0% specified in the permit was not noted until after the barge was loaded and underway. All other values were well within the permit numbers. In fact, the metallic calcium content was quite low indicating that much of the calcium was removed from the process as the oxide.

Mr. J. H. Huguet of Ethyl discussed this occurrence with Mr. Curry and Mr. Vickery of the EPA-Dallas office on July 2, while discussing the program proposed for the studies described in special condition 6 of the subject permit. It was their recommendation that Ethyl advise you of this problem and request a revision to the permit to give maximums for total calcium, sodium and salt. Ethyl believes that this recommendation is a most practical one. Using the permit values and converting the oxides to equivalent metal content

## EXHIBIT E

### Metals Analysis of Sodium-Calcium Sludge Waste

(Revision of May 16, 1973)

At the May 10, 1973, hearing on Proposed Permit 730D009, the Environmental Protection Agency advised the applicant that a more sensitive analysis (than was supplied in Ethyl's May 7, 1973, letter from Mr. Armstrong to Mr. Busch, attention Mr. Vickery) for the possible presence of certain metals would be required.

Ethyl Corporation contracted with Kem-Tech Laboratories of Baton Rouge to perform an independent analysis of the waste using the best techniques available. The results of this analysis are given in the following table. Limits of detection are given both in terms of parts per million by weight in the original sample and in terms of milligrams per liter in the solutions prepared from the samples.

Element	Amount Present (wt. ppm)	Limit of Detection	
		Based on Original Sample (wt. ppm)	mg/l <sup>(1)</sup>
Mercury	None detected	0.005	0.0002
Cadmium	0.06	-	-
Arsenic	None detected	0.2	0.01
Lead	0.3	-	-
Zinc	1.3	-	-
Selenium <sup>(2)</sup>	None detected	1.0	0.04
Vanadium	None detected	0.1	0.004
Beryllium	None detected	0.02	0.0005
Chromium	0.3	-	-
Nickel	1.1	-	-
Copper	0.9	-	-

(1) Concentration in the solution from which aliquots were taken for analysis.

(2) Ethyl analysis (Kem-Tech unable to perform this analysis).

Ethyl wishes to emphasize that the amounts of metals in the sodium-calcium sludge waste (as shown above) are extremely small, and that Ethyl's disposal of 3.4 million lb of sludge waste per year would result in the annual addition of no more than 0.2 lb of cadmium, 1.0 lb of lead, 4.4 lb of zinc, 1.0 lb of chromium, 3.7 lb of nickel, and 3.1 lb of copper to the Gulf's waters. No addition of mercury, arsenic, selenium, vanadium, or beryllium to these waters is indicated.